Introduction to the Modern Analogue Technique (MAT) for pollen data using the rioja 'R' package

Workshop
EPD Meeting 2016, Aix-en-Provence

Dear workshop participant,

This workshop will give you an introduction to MAT using the R package 'Rioja' written by Steve Juggins. Rioja contains functions for many other palaeoecological transfer functions as well as MAT. In this workshop however you will be shown how to reconstruct past climate and forest cover just using MAT, based on an example pollen record and a calibration training set of modern pollen samples. The workshop itself will consist of a ~30 minute introductory lecture, after which you can work through the instruction worksheet on your own or in pairs. If you are already confident in R, feel free to skip the first section that introduces R itself.

1. If you have not already done so, you will need to download and install R and the R management package RStudio (https://www.rstudio.com/products/rstudio-desktop/). When you open RStudio it will automatically find R on your computer.

2. From RStudio, you then need to install an additional 3 packages. Installing the packages in RStudio ensures that you will also download all the relevant dependent packages. You need to use the package manager – bottom right window – click 'package' tab, then button labeled 'install'. You need to install 3 packages 'rioja', 'fields' and 'maps'.

3. There is also a set of instructions and 4 data files that you will need for the workshop. These are available from the shared folder:
(https://drive.google.com/folderview?id=0B4_w4Ed6psQOcy1SUmJjOGNVV00&usp=sharing)
These files represent (1) step-by-step instructions for MAT analysis, (2) climate and (3) treecover for sites from the European Modern Pollen Database (EMPD), together with pollen percentages for these sites. This is your modern calibration training set. There is also data for the example pollen site of Lake Trummen in Southern Sweden (Digerfeldt 1972), comprising of (4) age depth model, and (5) pollen percentages.

> 1. EPD_MAT_Instructions.pdf
> 2. EMPD_climate.txt
> 3. EMPD_treecover.txt
> 4. Lake_Trummen_agebp.txt
> 5. Lake_Trummen_pollen_perc.txt

The additional files 'EPD_MAT_Instructions_RScriptOnly.R' is simply a copy of all of the R script in the instructions without the explanatory text, while 'rioja.pdf' is the full package documentation.

Please read and follow the instructions carefully, good luck!

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